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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/750,456

12/31/2003

J. Nelson Wright

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CALYPSO MEDICAL / PERKINS COIE, LLP

P.O. BOX 1247

SEATTLE, WA 98111-1247

EXAMINER

WEATHERBY, ELLSWORTH

ART UNIT

PAPER NUMBER

3768

NOTIFICATION DATE

DELIVERY MODE

01/25/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentprocurement@perkinscoie.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/750,456	<b>Applicant(s)</b> WRIGHT ET AL.	
	<b>Examiner</b> ELLSWORTH WEATHERBY	<b>Art Unit</b> 3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-49 is/are rejected.
- 7) ☒ Claim(s) 1-49 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>NPL1, NPL2, NPL3</u> .                 |

## **DETAILED ACTION**

### ***Terminal Disclaimer***

1. The terminal disclaimers filed on 05/26/2010 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of USPN 7,026,927 has been reviewed and is accepted. The terminal disclaimer has been recorded.
2. The terminal disclaimers filed on 05/26/2010 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of USPN 6,977,504 has been reviewed and is accepted. The terminal disclaimer has been recorded.

### ***Claim Objections***

3. Claims 6-7 and 38 are objected to because of the following informalities:  
Regarding claim 6, the claimed "all of sensing element" should read "all of said sensing elements". Regarding claim 7, the claimed "said sensing element" should read "said at least one sensing element". Regarding claim 38, there is not antecedent basis for the claim limitation "the other sensing arrays". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 6-11, 12-14, 17-23, 25-28, 29-31, 34-44 and 46-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diekmann et al. (RF-SQUID to DC-SQUID upgrade of a 28-channel magnetoencephalography (MEG) system) in view of Weitschies et al. (Magnetic Marker monitoring of disintegrating capsules).

6. Diekmann et al. (hereinafter Diekmann) teaches a method for calibrating a sensor array (Abstract; Figs. 1-7; Tables 1-2), the sensor array including a plurality of sensing elements (Abstract; pg. 845, 2.1. Hardware), the method comprising: applying a sinusoidal excitation to at least one and less than all of the plurality of sensing elements, e.g. a calibration subset, of the sensing array (pg. 846, 2.2. Calibration; pg. 846, 2.3. Elimination of crosstalk; pg. 846, 2.5. Calibration of cryostat position); analyzing the output of some or all of the plurality of sensing elements resulting from the excitation (pg. 846, 2.2. Calibration; pg. 846, 2.3. Elimination of crosstalk; pg. 846, 2.5. Calibration of cryostat position); repeating the excitation and analyzing process for at least one of the plurality of sensing elements (pg. 846, 2.2. Calibration; pg. 846, 2.3. Elimination of crosstalk; pg. 846, 2.5. Calibration of cryostat position); and determining corrections to a sensed signal based upon the analyzed outputs of the plurality of sensing elements (pg. 846, 2.2. Calibration; pg. 846, 2.3. Elimination of crosstalk; pg. 846, 2.5. Calibration of cryostat position). Diekmann goes on, teaching that each sensing element has a corresponding preamplifier wherein the corresponding preamplifier reduces capacitive loading on each sensing element (Abstract; Fig. 1, 3; pg. 845, 2.1. Hardware; pg. 847, Modification of the SQUID electronics). Diekmann further teaches the use of a

preamplifier and provides an input current through the preamplifier, which causes induced voltages in nearby sensors (Fig. 3; g. 847, Modification of the SQUID electronics: Here, the examiner stands that it is inherent that the input current would provide a voltage drop across the coils).

7. Diekmann does not expressly teach that the sensing array is used for marker localization. Diekmann also does not expressly teach that the corrections are applied to the outputs of the sensing array during marker localization. Diekmann also does not expressly teach that the calibrating method is interleaved between marker localization operations.

8. In the same field of endeavor, Weitschies et al. (hereinafter Weitschies) teaches tracking the gastrointestinal transit of a magnetically marked capsule using a SQUID magnetometer and a calibration model (Abstract; pgs. 413; Fig. 4). Here, the examiner stands that interleaving calibration between separate marker localizations would be obvious to improve the accuracy of the system for each marker localization operation.

9. It would have been obvious to modify the calibration of a SQUID sensor array of Diekmann in view of the use of a SQUID sensor array for marker localization of Weitschies. The motivation to modify Diekmann in view of Weitschies would have been to improve utility of any SQUID array in a known manner.

10. Claims 4-5, 15-16, 24, 32-33 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diekmann et al. (RF-SQUID to DC-SQUID upgrade of a 28-channel magnetoencephalography (MEG) system) in view of Weitschies et al.

(Magnetic Marker monitoring of disintegrating capsules) as applied to claims 2, 13, 21, 30, 43 above, and further in view of Granata et al. (Integrated LTc-SQUID magnetometers for multichannel systems).

11. Diekmann in view of Model teaches all the limitations of the claimed invention except for expressly teaching the use of a differential amplifier having first and second amplification elements.

12. In a related field of endeavor, Granata et al. (hereinafter Granata) teaches a dc-SQUID with lowered noise operation (Abstract; Figs. 1-6). Here, Granata teaches the a dc-differential amplifier in front of a first stage amplifier (pg. 97, IV. Device Performance).

13. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the amplifier of Diekmann in view of Weitschies with the multiple amplifiers of Granata. The motivation to modify Diekmann in view of Weitschies with Granata would have been to use known amplification elements to reduce amplification noise, as taught by Granata.

### ***Response to Arguments***

14. Applicant's arguments with respect to claims 1-49 have been considered but are moot in view of the new ground(s) of rejection.

15. For the purposes of facilitation prosecution, the Examiner suggests amending a limitation into the independent claims that requires the use of a marker. That is, the

Examiner stands that amending a positive limitation that requires that the markers be detected by the sensing array would facilitate allowance.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELLSWORTH WEATHERBY whose telephone number is (571) 272-2248. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/EW/

/Long V Le/  
Supervisory Patent Examiner, Art Unit 3768